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## Lauxaniidae and Agromyzidae (Diptera) of the Ryukyus

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**Abstract.** Two species of the Lauxaniidae and two species of the Agromyzidae are recorded from Japan for the first time, and new distributional data in the Ryukyu Islands are presented for five species of the genus *Homoneura* and eight species of the Agromyzidae. A new species, *Melanagromyza shirakii*, is described.

Key words: Taxonomy, Diptera, Lauxaniidae, Agromyzidae, Japan, Ryukyus, new species.

I have had an opportunity to examine the specimens of the Lauxaniid and Agromyzid flies in the collection of the Museum, National Institute of Agro-Environmental Sciences, Tsukuba. These valuable specimens were collected by the late Dr. T. Shiraki from the Ryukyu Islands in Dec. 1952 to April 1953.

Two species of the Lauxaniidae, *Trypetisoma fenestrata* (de Meijere) and *Wawu cornuta* (Hendel), are recorded newly from Japan. Twelve species of the genus *Homoneura* v. d. Wulp have hitherto been known to occur on the Ryukyu Islands (Sasakawa and Ikeuchi, 1982 & 1985), of which seven species are reported below as new to the island faunae, and *H. unguiculata* (Kertész) is widespread throughout the islands.

Only twelve agromyzid leaf-miners have been recorded from the Ryukyu Islands (Sasakawa, 1964 & 1967). Six species, *Ophiomyia conspicua* (Spencer) (stem-feeder on *Eclipta* in eastern Asia), *O. cornuta* de Meijere (leaf-miner on *Scaevola* in the Pacific), *Melanagromyza metallica* Thomson (flower-head feeder on *Bidens* in the Old World tropics), *Calycomyza artemisiae* Kaltenbach (leaf-miner on *Artemisia* in the Holarctic Region), *Liriomyza brassicae* (Riley) (leaf-miner on Brassicaceae; cosmopolitan) and *Chromatomyia horticola* (Goureau) (leaf-miner of many cultivated plants in Asia, India and Africa), are widely distributed throughout the islands. Shiraki's collection consists of eleven species, of which one is described newly as *Melanagromyza shirakii*, and two, *Melanagromyza pubescens* Hendel and *Tropicomyia flacourtiæ* (Séguy), are recorded newly from Japan.

### I. LAUXANIIDAE

***Trypetisoma (Trypaneoides) fenestrata*** (de Meijere)

See Sasakawa and Tho( 1990), p. 126.

Specimens examined. Okinawa Is.: 2 males and 3 females, Nakagusuku, 17 & 20 Apr. 1953. Amami-Ohshima Is.: 1 female, Nase, 27 Apr. 1953, T. Shiraki; 2 males and 1 female, Shinmura, 23 July 1954, Y. Hirashima.

*Distribution.* Java, Malaysia, Japan. New to Japan.

***Wawu cornuta* (Hendel), n. comb.**

*Monocera cornuta* Hendel, 1913, 100.

Sexual dimorphism is distinct in this species: male is characterized by having an epistomal horn which is variable in length as shown in Fig. 1 (a, b) but female not having the horn; upper fronto-orbital bristle is directed up- and outward, and the lower one up- and inward (usually decussate apically) in male, while both bristles reclinate in female.

Male genitalia (Figs. 2-3): Protandrium annular, but very weakly sclerotized on ventral side; surstylus projected shortly toward posteriorly and minutely setulose; hypandrium Y-shaped; praegonite with several setulae; postgonite absent; aedeagus largely membranous, only sclerotized at base; aedeagal apodeme subequal to aedeagus or hypandrium in length.

*Specimens examined.* Ishigaki Is.: 1 female, Ohama, 3 Feb. 1953; 4 males and 3 females, Kabira, 4, 12 & 23 Feb. 1953; 1 male, Inoda, 27 Mar. 1953. Iriomote Is.: 2 males, Sonai, 31 Dec. 1952 & 1 Jan. 1953; 1 male, Natayama, 9 Jan 1953.

*Distribution.* Taiwan, Japan (Ryukyus). New to Japan.

***Homoneura (Homoneura) acrostichalis* (de Meijere)**

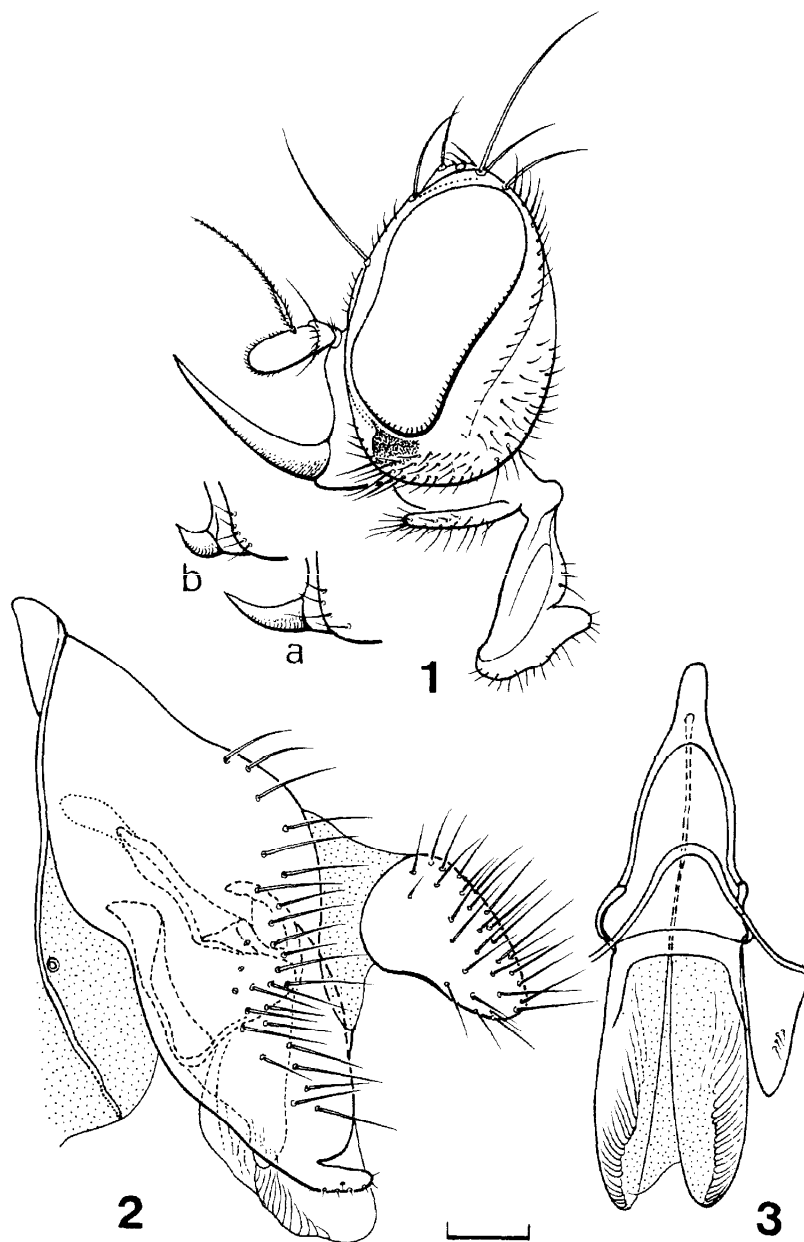
*Specimens examined.* First records from Okinawa and Iriomote Is. Okinawa Is.: 1 female, Chinen, 1 Apr. 1953; 1 male, Nakagusuku, 20 Apr. 1953. Iriomote Is.: 1 male and 1 female, Sonai, 1 Jan. 1953.

***Homoneura (Homoneura) bistriata* (Kertész)**

*Specimens examined.* First records from Ishigaki, Iriomote and Taketomi Is. Ishigaki Is.: 2 males and 3 females, Ohama, 3-6 Feb. 1953; 2 males and 10 females, Kabira, 4, 12 & 23 Feb. 1953. Iriomote Is.: 1 male and 5 females, Sonai, 31 Dec. 1952 - 3 Jan. 1953. Taketomi Is.: 1 female, Taketomi, 24 Jan. 1953.

***Homoneura (Homoneura) discoglauca* (Walker)**

*Specimens examined.* First record from Ishigaki Is.: 1 female, Ishigaki, 5 Feb. 1953; 1 female, Kabira, 12 Feb. 1953.



**Figs. 1-3.** Male head and genitalia of *Wawu cornuta* (Hendel). 1, head, coll. Inoda. Ishigaki Is., 27 Feb. 1953; epistomal horn: a, Natayama, Iriomote Is., 9 Jan. 1953; b, Kabira, Ishigaki Is., 4 Feb. 1953; 2, epandrium and cercus, lateral view; 3, hypandrium, praegonite and aedeagus, ventral view. Scale 0.1 mm.

***Homoneura (Homoneura) tridentata* Sasakawa et Ikeuchi**

*Specimens examined.* First records from Miyako and Iriomote Is. Miyako Is.: 1 female, Hirara, 9 Mar. 1953. Iriomote Is.: 1 female, Sonai, 29 Dec. 1952.

***Homoneura (Homoneura) unguiculata* (Kertész)**

*Specimens examined.* First records from Miyako and Iriomote Is. and Amami-Ohshima Is. Miyako Is.: 1 female, Hirara, 4 Mar. 1953; 1 male and 1 female, Shimoji. 7 Mar. 1953. Iriomote Is.: 1 male and 7 females, Sonai, 29 Dec. 1952 - 6 Jan. 1953; 1 male, Natayama, 9 Jan. 1953; 1 female, Ohara, 19 Jan. 1953. Amami-Ohshima Is.: 2 males and 2 females, Nase, 27 Apr. 1953; 10 males and 7 females, Yuwan, 29 Apr. - 8 May 1953.

**II. AGROMYZIDAE*****Melanagromyza dolichostigma* de Meijere**

*Specimen examined.* First record from Okinawa Is.: 1 female, Gushichan, 3 Apr. 1953.

***Melanagromyza metallica* (Thomson)**

*Specimens examined.* First records from Miyako and Iriomote Is. Miyako Is.: 1 male. Shimoji, 7 Mar. 1953; 32 males and 2 females, Hirara, 9 Mar. 1953. Iriomote Is.: 1 female, Nakara, 4 Jan. 1953; 1 female, Sonai, 6 Jan. 1953; 1 male and 1 female. Natayama, 13 Jan. 1953; 1 female, Ohara, 19 Jan. 1953.

***Melanagromyza pubescens* Hendel**

*Melanagromyza pubescens* Hendel, 1923, Konowia 2: 144.

*Melanagromyza luthulii* Spencer: Sasakawa, 1996, 9.

Male and female specimens from the Ryukyus are small (2.4 - 2.5 mm in wing length); the parafrontalia is not or linearly projected above eye margin in profile and the gena is one-fifth to one-sixth height of eye at middle.

*Specimens examined.* Okinawa Is.: 2 females, Naha and Gushichan, 3 & 28 Feb. 1953. Ishigaki Is.: 1 female, Ohama, 6 Feb. 1953. Amami-Ohshima Is.: 1 male, Nase. 27 Apr. 1953.

*Distribution.* Europe, Nepal, Mongolia, Japan, South Africa. New to Japan.

*Melanagromyza shirakii* Sasakawa, n. sp.

*Male*. Black; head very sparsely greyish dusted; ocellar triangle mat; gena and arista brown-tinged; thorax densely grey dusted; mesonotum weakly shining; abdomen shiny. Wing hyaline; calypter brownish white, with margin dark brown, fringe black; halter black.

Frons about one and two-thirds times width of eye, converging ventrally; ocellar triangle with ventral apex extending to the middle between two *ors*-levels; parafrontalia distinctly projecting above eye in profile; *ors* two, first *ors* reclinate and the second directed up- and inward; *ori* three or four, incurved; distance between *vti* and first *ors* twice as long as that between two *ors* or second *ors* and first *ori*; *oh* rather long, reclinate in two irregular rows; lunule semicircular; eye bare; gena one-fourth height of eye: third antennal segment small, only a little shorter than broad, minutely pilose; arista shorter than eye height, about two and a half times as long as whole length of the antenna, microscopically pubescent.

Mesonotum with 0+3 *dc*, first *dc* about three-fifths length of the posteriormost *dc*, distance between first and second *dc* one-third that between second and third *dc*; *acr* in eight rows anteriorly but six sparse rows behind level of first *dc*; *ia* subequal to first *dc* in length; sternopleuron with four setae and several setulae before *stpl*. Wing with costa extending to  $M_{1+2}$ , with sections 2-4 in proportion of 43: 10: 11; r-m at distal one-third of discal cell; ultimate section of  $M_{1+2}$  about four times as long as the penultimate; ultimate section of  $M_{3+4}$  almost two-thirds length of penultimate. Fore tibia with an external bristle; mid tibia with a short pd.

Genitalia (Figs. 4-6): Surstylus distinctly projected, one-half as wide as epandrium, bearing forty-six spines; hypandrium nearly half length of phallapodeme (800  $\mu$ m long), with basl apodeme one-tenth length of its side piece; phallus as long as side piece of hypandrium, basiphallus narrow, distiphallus with lobes striated ventrally and spinulose internally at base; ejaculatory apodeme narrow rod-like and slightly expanded before end, 310  $\mu$ m long and 125  $\mu$ m in greatest width.

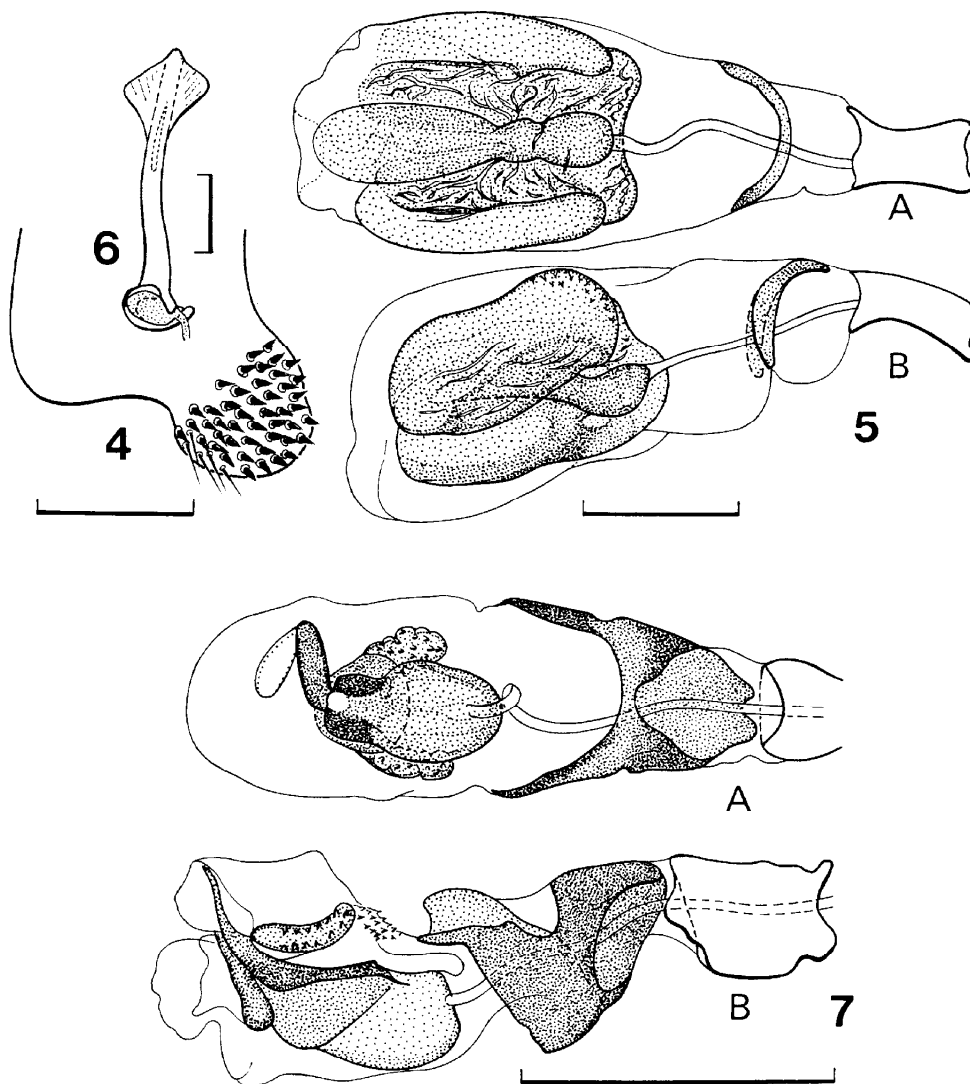
Length of body and of wing each 3.2 mm.

Holotype male, Mt. Yonaha, Okinawa Is., 11 Apr. 1953. T. Shiraki; genitalia in a polyethylene tubule with glycerol and pinned with the specimen.

*Distribution*. Japan (Ryukyus).

*Remarks*. This new species is closely related to Taiwanese *sauteri* (Malloch, 1914) in having the distinct projection of parafrontalia and the long orbital hairs, but may be separable from the latter by the chaetation: three or four lower fronto-orbitals, three dorso-centrals and an external bristle on the fore tibia, the wing length and the relative length of vein  $M_{3+4}$  sections. This species differs also from *M. papuensis* Spencer (1962), with the broad gena and fore-tibial bristle, by the number of lower fronto-orbital bristles, and from Australian *trispina* (Malloch, 1927), with three pairs of dorso-central bristles, by the coloration of squamal fringe, direction of orbital hairs and wing venation (position of r-m and relative length of  $M_{3+4}$  sections).

This species is named in honor of the collector, T. Shiraki.



Figs. 4-7. Male genitalia of *Melanagromyza shirakii* n. sp. (4-6) and *Tropicomyia flacourthiae* (Séguy) (7). 4, surstylus, inner side; 5 & 7, phallus (A & B, ventral and lateral views); 6, ejaculatory apodeme. Scale 0.1 mm.

***Tropicomyia flacourthiae* (Séguy)**

*Melanagromyza flacourthiae* Séguy, 1951: 320.

*Tropicomyia flacourthiae*: Spencer, 1973: 185.

The flies have been reared from the epidermal mines found on 21 families as hosts (Spencer, 1990). The male genitalia (Fig. 7) are distinctive in the large size of basiphallus, and the presence of a pair of spinulose dorso-lateral lobes on the distiphallus and the absence of spines on the surstylus (only with about thirty short but stout setulae).

*Specimens examined.* Okinawa Is.: 1 female, Gushichan, 3 Apr. 1953. Iriomote Is.: 1 male and 1 female, Sonai, 5-6 Jan. 1953.

*Distribution.* Madagascar, Africa, Japan (Ryukyus). New to Japan.

***Ophiomyia conspicua* (Spencer)**

*Specimens examined.* First record from Iriomote Is.: 1 male and 1 female, Ohara, 19 Jan. 1953.

***Japanagromyza tristella* (Thomson)**

*Specimens examined.* First record from Okinawa Is.: 1 male, Gushichan, 3 Apr. 1953; 1 male, Nakagusuku, 17 Apr. 1953.

***Calycomyza artemisiae* (Kaltenbach)**

*Specimens examined.* First record from Okinawa Is.: 1 female, Hentona, 27 Mar. 1953; 2 males, Nakagusuku, 15 & 17 Apr. 1953.

***Liriomyza asterivora* Sasakawa**

*Specimens examined.* First records from the Ryukyus. Okinawa Is.: 4 males and 3 females, Naha, 28 Feb. 1953; 5 males and 3 females, Nago, 18 Mar. 1953. Miyako Is.: 2 females, Hirara, 16 Mar. 1953.

***Liriomyza brassicae* (Riley)**

*Specimens examined.* First records from Okinawa and Miyako Is. Okinawa Is.: 1 female, Hentona, 26 Mar. 1953; 1 female, Nakagusuku, 15 Apr. 1953. Miyako Is.: 1 male and 1 female, Hirara, 9 Mar. 1953.

***Chromatomyia horticola* (Goureau)**

*Specimens examined.* First record from Okinawa Is.: 2 females, Naha, 28 Feb. 1953.



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